

REMARKS/ARGUMENTS

Reconsideration and withdrawal of the outstanding grounds of rejection are respectfully requested in light of the above amendments and the remarks that follow.

The Examiner has objected to the specification for the reasons stated on page 2 of the Official Action. Applicant has amended the specification to correct each informality identified by the Examiner.

The Examiner has objected to claim 9 on the ground that there is insufficient basis for the limitation "first plurality" in line 2 of the claim.

Applicant has rewritten claim 9 in independent form and antecedent basis has been provided for each and every limitation in the amended claim.

The Examiner has rejected claims 4-6 and 10-15 under 35 U.S.C. 112, second paragraph, as indefinite. According to the Examiner, it is not clear if the diameter depth and spacing between adjacent grooves are measured in inches, centimeters, etc.

The Examiner will note that the limitations in these claims are not dimensions per se, but rather, ratios based on any given diameter of the liner. It is the ratios that are being claimed here, not dimensions, and thus, dimensional units are wholly inappropriate. It is respectfully submitted that the claims are in fact in full compliance with 35 U.S.C. 112, second paragraph.

The Examiner has rejected claims 1-3 and 8 under 35 U.S.C. 102(b) as anticipated by prior art Figure 3 of the instant application.

Applicant has amended independent claim 1 to more clearly distinguish between an annular groove and an elliptical dimple of the type shown in Figure 3. Specifically, claim 1 has been amended to require a plurality of axially spaced annular grooves formed in an outside surface of the liner, each groove extending continuously about a circumference of the liner. Clearly, the dimples 44 in Figure 3 do not meet the requirements of claim 1 as amended. As a result, the rejection of independent claim 1 as well as dependent claims 2, 3 and 8 as anticipated by Figure 3 should be withdrawn.

The Examiner has rejected claims 1-3 and 8 under 35 U.S.C. 102(b) as anticipated by Glezer (U.S. 6,098,397). Here again, the circular dimples 84' in Glezer do not provide response for the annular grooves extending continuously about a circumference of the liner as now required by independent claim 1, and therefore, this ground of rejection should also be withdrawn.

The Examiner has rejected claims 1, 8 and 9 under 35 U.S.C. 102 as anticipated by Hadder (U.S. 6,530,225).

The "grooves" between the raised waffle pattern in Hadder are not annular grooves that extend continuously about a circumference of the liner. At best, the spaces or "grooves" between the raised squares that create the external waffle (and internal chamber) pattern in Hadder are discontinuous. Accordingly, the rejection of claims 1 and 8 should also now be withdrawn.

Claim 9 has been rewritten in independent form and now also distinguishes over Hadder. In this regard, note that the outer member 414 in Hadder is not a combustor liner

located concentrically within an outer flow sleeve such that the grooves are open to the flow sleeve and air flow flows between the liner and the flow sleeve across the grooves. In Hadder, the cooling flow does not flow over the "grooves" in the waffle pattern. In fact, the waffle pattern exists solely to create discrete flow chambers, i.e., the cooling flow is under the waffle pattern, between the second member 414 and the first member 412. The small chambers act to cause flow expansions and contractions that will enhance cooling of the combustor liner 412 and act to allow some degree of flow metering. Flow enters these sets of chambers in the normal direction (orthogonal) to the surfaces at 416, 418, through a local groove 422. Clearly, there is no convective flow over the waffled groove pattern disclosed in Hadder. Of course, the internal flow has no such grooved pattern either, but merely sets of small expansion chambers.

For the above reasons, independent claim 9 is clearly patentable over Hadder.

The Examiner has rejected claims 4-6 and 10-15 under 35 U.S.C. 103 as unpatentable over Glezer.

Independent claim 10 has been amended in a manner similar to claim 1 so that the claim now requires annular grooves that extend continuously about a circumference of the liner. As already noted, Glezer merely teaches circular dimples and thus, the claim neither discloses nor even remotely suggests the subject matter of independent claim 10. It follows that the subject matter of claims 11-15 is also patentable over Glezer.

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With respect to dependent claims 4-6, these claims are patentable by reason of their dependence upon claim 1, and moreover, Glezer fails to suggest the specific ratios required by claims 4-6.

The Examiner has rejected claims 1-8 under 35 U.S.C. 103 as unpatentable over Wetzler in view of Glezer. The Examiner acknowledges that Wetzler does not teach axially spaced circumferential grooves and relies upon Glezer for its teaching of concavities 84. As already noted above, Glezer clearly fails to disclose or suggest the plurality of annular grooves extending continuously about a circumference of the liner as now required by independent claim 1. Accordingly, the rejection based on the combination of Wetzler and Glezer should now also be withdrawn.

It is respectfully submitted that all of the application claims are now in condition for immediate allowance, and early passage to issue is requested. In the event, however, any small matters remain outstanding, the Examiner is encouraged to telephone the undersigned so that the prosecution of this application can be expeditiously concluded.

Respectfully submitted,

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